Results: In hospital complications (death, MI, and emergent CABG were similar among groups. Correlates of repeat revascularization were: diabetes, unstable angina, DCA, and number of vessel diseased (relative risk 1.453, 1.423, 1.311, 1.099 respectively. A larger lumen was obtained with stents and DCA. Event free survival at 3 years trended in favor stents (p = 0.02)

Device	PSS	RTA	DCA	Balloon	P
Lesion Success	94.5	100	94.6	96.7	0.41
MLD POST (mm)	2.7 + 0.6	2.4 + 0.4	2.8 + 0.7	2.2 + 0.8	0.0001
Q wave MI %	7.9	1.9	4.4	9.1	0.07
CABG %	18.9	14.0	26	17.4	0.06
PTCA %	23.4	21.6	27.4	27.7	0.65
Death %	5.8	0	5.0	5.6	0.35
Recurrent Angina %	28.4	26.9	30.1	35.0	0.25

Conclusions: New devices compared to balloons do not reduce the cardiac events and revascularization rate in patients with restenotic lesions. Stents may result in favorable outcome among new devices.

1081-1 Rotational Atherectomy followed by Balloon Angioplasty for Treatment of Intra Stent Restenosis. A Pilot Study With Quantitative Angiography and Intracoronary Ultrasound

F. Schiele, N. Meneveau, A. Vuillemenot, S. Gupta, J.-P. Bassand. *Hôpital Universitaire Saint-Jacques, 25000 Besançon, France*

Optimal treatment (Tx) of intrastent restenosis (ISR), is not yet clear even if balloon angioplasty (PTCA) was shown to be efficient. In 20 Pts with ISR, we compared angiographic and intra-coronary ultrasound (ICUS) findings after rePTCA alone (n = 10), or rotational atherectomy + PTCA (RA) (n = 10). 1.75 mm and 2.0 mm burrs were used for stent bebulking. Non compliant balloon inflated at 15 atm were used in all Pts. Minimal Lumen Diameter (MLD) was assessed with QCA, and vessel size (EEM), stent cross sectional area, lumen area and neo intimal tissue area (Stent area -Lumen area = NeoTissue) with ICUS.

	AngioMLD	StentCSA	LumenCSA	NeoTissue
PTCA PreTx	1.12 ± 0.07	7.09 ± 1.6	3.05 ± 1.5	4.04 ± 1.5
PTCA final	2.0 ± 0.24	8.82 ± 1.5	5.62 ± 1.2	3.2 ± 1.4
RA PreTx	0.76 ± 0.16	7.9 ± 2.2	2.25 ± 1.2	5.65 ± 1.7
RA alone	1.3 ± 0.02	7.92 ± 2.5	4.12 ± 2.2	3.8 ± 2.2
RA + PTCA	2.25 ± 0.46	8.4 ± 1.9	6.02 ± 1.9	2.38 ± 1.6

No complication occurred during the Tx, outcome was favorable in all Pts. After PTCA, IVUS showed overexpansion of the stent, with most of NeoTissue remaining within the stent. After RA, debulking was efficient but adjunctive PTCA was necessary to achieve sufficient MLD. These results suggest that device synergy (RA + PTCA) in the Tx of intrastent restenosis is an interesting approach. Further larger randomized study is needed for comparison with balloon angioplasty.

1081-2 Factors Influencing the Extent and Severity of Transient Perfusion Defects Induced by Rotational Atherectomy

K.-C. Koch, J. vom Dahl, E. Kleinhans, H.G. Klues, S. Ninnemann, G. Schulz, M. Sigmund, U. Buell, P. Hanrath. *University Hospital, Aachen, Germany*

Myocardial hypoperfusion and "slow flow" during high-frequency percutaneous transluminal rotational atherectomy (PTRA) has been reported to result from coronary spasm and microvascular obstruction.

To evaluate the extension and severity of this phenomenon, 34 patients (pts, 24 men; 61 ± 10 years; 13 type B2, 21 type C lesions; lesion length 32 ± 16 mm) were studied by Tc-99m sestamibi SPECT at rest before (preR), during PTRA (R) with SPECT imaging after 90 min, and two days post intervention (postR). During 48 hour monitoring, there were no persistent ECG changes or creatine kinase-MB and troponin T elevations indicating myocardial necrosis with the exception of one pt with a transmural infarction after failed PTRA.

Visual analysis revealed reversible perfusion defects in PTRA vessel regions in 31/34 pts. For quantitative analysis, the left ventricle was divided into 24 regions and perfusion expressed as % of the region with maximal sestamibi uptake preR. Transient perfusion reduction below normal minus 2.5SD was observed in 3.1 ± 2.4 regions/pt. Baseline perfusion in the PTRA vessel territory was 74 ± 15%, decreased to 55 ± 14% ($p < 0.001$) during PTRA, and normalised to 74 ± 16% postR ($p < 0.001$ vs. R). In calcified lesions, the extent of perfusion defects was larger as in noncalcified lesions (4.2 ± 2.5 vs. 2.3 ± 2.0 regions/pt, $p < 0.05$). Other factors (e.g. location and type of stenosis, lesion length, collaterals, burring time, bur size, gender) did not correlate with size or severity of perfusion defects. However, preliminary observations in additional 7 pts with comparable lesion and procedure characteristics receiving the antiplatelet antibody Fab 7E3 (ReoPro™) prior to and during PTRA revealed no significant perfusion defects (68 ± 10% preR, 64 ± 9% R, 73 ± 12% postR; 0.4 ± 2.4 regions/pt).

Thus, PTRA induces a reversible regional ischemia as quantified by sestamibi SPECT. Preliminary data indicate that periprocedural therapy with 7E3 antibody reduces this transient hypoperfusion and that platelet aggregation may play a role for the "slow flow" phenomenon.

1081-3 Rotational Atherectomy Prior to Coronary Stenting Prevents Side Branch Occlusion

S.K. Sharma, N. Bhalla, G. Dangas, S. Duvvuri, V. Kakarala, J.D. Marmur, T.P. Cocke, J.A. Ambrose. *The Cardiovascular Institute, Mt. Sinai Hospital, NY, USA*

Axial redistribution and "snow-plowing" of the atherosclerotic plaque during coronary stenting (S) may lead to side branch (SB) occlusion (occl.) within stented segments, particularly when the ostium of the SB is stenotic. In order to evaluate whether pre treatment with the rotablator (RA) decreases the frequency of SB occlusion during S, we evaluated the incidence of SB occlusion in 181 consecutive S cases with 215 SBs originating within the stented segment. In 51 cases with 65 SBs, RA was performed prior to S deployment while in 130 cases with 152 SBs stents were deployed with high pressure balloon without prior RA. Total occlusions, bailout and vein graft cases were excluded. The SBs were classified by % ostial stenosis and by size. Post procedure SB occlusion was defined as < TIMI 3 flow. A total of 35 out of 215 SBs were occluded (16%), mostly (80%) after the high pressure balloon inflation:

SB group	Stent alone		RA + stent	
	Total SBs	Occl. SBs	Total SBs	Occl. SBs
< 1.5 mm, > 70%	13	9 (69)	17	3 (18)
< 1.5 mm, < 70%	73	7 (10)	21	0 (0)
> 1.5 mm, > 70%	27	12 (44)	7	1 (14)
> 1.5 mm, < 70%	39	3 (8)	18	0 (0)
Total (%)	152	31 (20)*	63	4 (6)*

*p = 0.02

Conclusions: SB occlusion was most common in small stenotic SBs. RA prior to stent deployment appears to preserve the patency of SBs. This may be related to the diminished plaque burden and the cylindrical lumen morphology achieved by RA, which may minimize plaque redistribution ("snow-plow" effect) at the ostia of SBs during high pressure stent deployment. These observations suggest the need for a randomized trial to assess the preservation of SB during stenting.

1081-4 Rotational Atherectomy of Right Coronary Ostial Stenosis: Procedure of Choice Based on Long-Term Clinical Outcome?

J.G. Motwani, R.E. Raymond, I. Franco, S.G. Ellis, E.M. Tuzcu, G.L. Howell, P.L. Whitlow. *Cleveland Clinic Foundation, Cleveland, OH, USA*

Ostial stenosis of the right coronary artery (Os) is associated with low procedural success and a high restenosis rate with PTCA, and frequent calcification at this site may preclude optimal stent deployment. Accordingly, from 1/92 to 7/96, 111 pts (age 66 ± 3 yrs) underwent rotational atherectomy (RA) of Os. Pt characteristics: mean LVEF, 61%; multivessel disease, 59%; prior MI, 33%; prior CABG, 18%; diabetes, 11.7%. Lesion characteristics: mean length, 3.14 mm; moderate/severe calcification, 59%; eccentric, 41%; restenotic, 12%. In 54% of pts, > 1 lesion site was treated (mean 1.9 lesions/pt). Maximum burr/artery ratio for Os was 0.64 ± 0.1 with adjunctive PTCA in 94% and adjunctive stenting in 5%. Procedural success (< 50% stenosis without death, QMI or emergency CABG) was 97.3% with 1.8% uncomplicated failure, 0% death, 0.9% QMI and 0% emergency CABG. Pre-RA, post-RA and post PTCA stenoses were 73 ± 14%, 38 ± 9% and 16 ± 10%, respectively. Clinical follow-up in 90.3% patients at 6.3 ± 0.6 months post-intervention was: angina-free, 78.5%; recurrent angina due to angiographically-confirmed Os restenosis, 12.9%; recurrent angina due to angiographic restenosis or disease progression at another site, 8.6%. Of the pts asymptomatic at 6 months, 52 have been followed for ≥ 12 months and 48 have remained angina-free at 24.2 ± 4 months post-intervention. *Conclusions:* Rotational atherectomy of right coronary ostial stenoses results in excellent acute procedural success and in low incidence of 6-month clinical recurrence with a high proportion of patients remaining angina-free at two year follow-up.